

The Importance of Maintaining a Balance in Nature

The Role of Calcium Hydroxide

Harry L. Francis

Consultant

March 10, 1998

We are seeing a tremendous outbreak of old and new diseases throughout the world, with diseases that were under control, rebounding with biocidal resistant strains. These outbreaks are disturbing as more and more medicines seem to no longer work. The underlying fear is that we will experience a world wide epidemic of a size and virulence, previously unknown. This is mainly due to the quick transportation of infected persons and animals throughout the world. Many infected persons, animals and insects can be transported and infect others long before they are determined to be sick.

Throughout history, man has been rather isolated, and when a disease became virulent, the spread was mainly isolated to the tribe. Survivors acquired immunity to the disease, and the weaker people and animals died. Occasionally uninfected peoples were decimated by the visits of travelers, such as sailors visiting the New World for the first time. Diseases unknown to the sailors were acquired with devastating results. The same was true for the natives. Neither had acquired immunity to the "new" diseases.

Now at the end of the 20th Century, we have studied many epidemics throughout recorded man's history. From the black death, tuberculosis, flu of all kinds, cholera, etc., till today we have most diseases under control in the developed world. However, because of the ease and quickness of transportation we can easily spread diseases to all corners of the world within hours. Many in the populations of the world have little or no immunization due to lack of inoculation, or the fact that "that kind of disease" has not been known in their part of the world for years; and therefore few even recognizes the symptoms.

Let us explore the "Natural Balance" theory. It appears that germs, virus, etc., are all around us, and that over the millenniums humans and animals have developed immunity to most of these - as long as we remain healthy. This is how our species and other species have survived the constant struggle that every life form experiences.

If we eliminate one species of animal, bacteria, virus, etc., then the other bacteria, virus, animals that kept the species in balance, literally explodes, creating problems in the environment. Out of Balance, nature can no longer support the species, and it perishes.

The excessive use of chlorinated hydrocarbon and other exotic pesticides since about 1940 has had a dramatic effect on this balance. Rachael Carlson explored this issue in "Silent Spring". She was correct about DDT and we are still suffering from the use of this material. In fact it is still being used in some third world countries as we try to survive. Often, short term, quick solutions (while sometimes necessary) are detrimental in the long run. This is what appears to be happening in the world today. One can make a case for "Out of Balance" nature. However, this "Out of Balance" condition may be recoverable with some fairly simple actions.

Simple, for such a complex problem? Well let's explore some history and recent actions we have taken to exploit the earth.

Before the turn of the century, most all agricultural liming and fertilizing was accomplished with animal and natural manures. We let fields lay fallow for alternate years, then plowed under the organic matter as fertilizer. If the soil was still sour to the taste, the farmer burned and applied some lime. Limestone or shells were piled onto layers of fuel - mainly wood - and set on fire. When the fire was out, the farmer poured water onto the pile of burnt lime and ashes, forming hydrated lime (calcium hydroxide) and potash fertilizer. This fertilizer was applied to the soil at about two bushels to the acre. Not only did it supply the necessary nutrients to the soil, but it also partially sterilized the soil, controlling the insects, bacteria, virus and fungi - providing the necessary "Balance". Lime and potash will not kill all the soil organisms, but will effectively control the excess. The residuals are not toxic to man or beast, or bird or plant, but are effective in controlling the undesirable organisms.

Recent studies published in Pan America, by the World Health Organization, show that calcium hydroxide is effective in eliminating test patches of cholera. Research by EPA, 1967, shows that almost all pathogenic bacteria and virus can be eliminated from waste water sludges with the application of lime. Recent work by Southwest Research Institute, San Antonio, Texas shows that all bacteria, virus and fungi tested are decimated by the high pH of Calcium Hydroxide, yet remains non-toxic to higher life forms and humans.

Excess use of fertilizers and pesticides have almost destroyed our environment. The Chesapeake Bay is almost dead, infested with fisteria; the Mississippi River has been declared dead due to excessive fertilizer and animal waste runoff. Our environment is "Out of Balance". In an effort to force high levels of crops, we have fed the plants, not the soil. As Neal Kinsey points out in his book "Hands on Agronomy", we must learn to feed the soil, putting it back in balance. The proper balanced soil will best feed the plant for a continual lifetime. This is probably true for animals and humans - we should be feeding the gut, and let a healthy gut feed the body.

As mentioned earlier, about the turn of the century, we created machines that could grind limestone to a small enough particle size so that it was effective in adjusting the pH of our farm soils. Because it was cheaper than "burnt" lime, Government agents recommended it over the chemical burnt lime (calcium oxide and hydroxide). Limestone will adjust the pH, but has no effect on the soil particle structure or does it have any disinfection action, as does hydrated lime (Calcium Hydroxide). Was the 1918 flu epidemic due to the upset of the Natural Balance, due to the elimination of hydrated lime as a fertilizer and liming agent? Did this lack of a control (hydrated lime) allow nature to become out of balance? Are we continuing to suffer with new outbreaks ?

Hydrated lime, both dolomitic and high calcium, agglomerate the clay soil particles, improving the tilth (breathing) of the soil, and because of the larger particle size and elimination of the "hard pan", the soil is less likely to erode - both from water and air. The particles are sand size instead of dust size. Thus the larger particle size helps to prevent air erosion, and spread of the pathogens. It also absorbs water to a greater extent. The disinfection action on virus, bacteria,

fungus, and the supply of calcium and magnesium nutrients, all have a beneficial effect in achieving a "Natural Balance".

A world wide effort to again utilize what nature has offered us - Lime, instead of continuing dependence on excessive fertilizers and toxic pesticides, may allow us to survive as a species. Researchers are urged to experiment with Calcium Hydroxide and new formulations such as are being developed by Southwest Research Institute (Dr. Bill Mallow), toward the control of bacteria and virus. Dr. Mallow is producing a polymer modified paint based on calcium hydroxide - that maintains its pH of about 12, for over four years. All virus, molds, and bacteria tested have been decimated on contact to the painted surface. The use of this material along with hydrated lime in farming, water treatment, sewage treatment and agricultural liming, may be the "simple" and natural answer for which we are all striving - and at a much lower economic and environmental cost.

The Brazilian Lime Industry informs me that in Brazil, lime slurry is used to paint the lower two meters of trees in the wet lands. This lime wash kills the larva of the mosquitos which cause dengue fever and malaria. The trees must be painted on a regular basis as the lime quickly carbonates and loses its effectiveness as the pH is lowered below about 11. The lime based paint (Caliwel) being developed by Dr. Mallow at Southwest Research Institute just might be the answer. It may also be the answer to controlling virus containing rat droppings, swine waste, and avian virus.

XXX

I encourage you to consider this information carefully. I encourage you to act before we have the world wide outbreak of which we all fear. I would be pleased to discuss this issue with you and to help in simple experiments to evaluate the use and effectiveness of hydrated lime in maintaining a "Natural Balance." - Harry L. Francis 2851 Sarver Rd, Elliston, Va. 24087 -ph/fax 540-268-2307

References:

*Time magazine article: "The Flu Hunters", February 23, 1998

*Rachael Carlson - "Silent Spring"

*"Bactericidal Effect of Hydrated Lime in Aqueous Solution", Carlos Munoz, in *Pan America*.

*" The Use of Reclaimed Water and Sludge in Food Crop Production"- National Research Council Report, 2/28/96. Committee on the use of Treated Municipal Wastewater Effluents and Sludge in the Production of Crops for Human Consumption, Albert L. Page, PH.D. (Chair), University of California, Riverside.

*"Stabilization of Sewage Sludges (Bio-Solids) with Alkaline Earth Materials (Lime): Meeting EPA 503 Regulations and Producing Products Acceptable to the Public", Harry L. Francis, 1997 (un-published).

*"Efecto biocida del hidroxido de calcio $\text{Ca}(\text{OH})_2$ y la importancia de su utilizacion en la agricultura", published by Asociacion Nacional de Fabricantes de cal, A.C. (Mexican Lime Association), por: Ing. Edgar Larrea Reynoso; QFB Gabriela E. Ruiz Gutierrez; Biol. Ma. Beatriz Jimenez Vargas.

*Nature's Own Pooper- Scoopers Keep Earth Liveable for all of us., Smithsonian., June 97, David G. Holzman

*"Development of Lime Paint Offers New Weapon in Antimicrobial Arsenal", Paint & Coatings Industry, October 97, covers the development by Dr. William Mallow.

*Background data- research on the effectiveness of lime based paint, Results: (bacteria, virus, fungi)- unpublished - Dr. William Mallow, SRI, San Antonio, TX.

*Caliwel a product of Alistagen <http://caliwel.com/products-body.htm>

*"Hoovers' Water Supply & Treatment", twelfth edition, pg 96-99, by Nicholas Pizza, Lake County Department of Utilities, Plainesville, Ohio, published by National Lime Association, 1976.